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Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 6 of 14

REMARKS

Upon entry of this Amendment claims 1-23 are pending in the Application. Claims 1-12 have been withdrawn from consideration. In the Office Action dated June 2, 2006, the Examiner rejects claims 13-23. Claims 20 and 21 are rejected under 35 U.S.C. § 112, second paragraph. Claim 13 is rejected under 35 U.S.C. § 102(b), and claims 14-19, 22 and 23 are rejected under 35 U.S.C. § 103(a). With this amendment, claims 13-15, 19, 20, 22 and 23 are amended. It is submitted that, by this Amendment, all bases of rejection are traversed or overcome. Reconsideration is, therefore, respectfully requested.

The present invention as set forth in claims 13-23 is a watershield mountable on a vehicle door in a cavity defined therein. The watershield as disclosed herein addresses the need to avoid the introduction of water into the inner portion of the vehicle door and from the vehicle interior itself. The watershield also mitigates the transmission of undesirable sound into the vehicle interior space, while providing improvements in efficiency as well as cost and weight reduction to the vehicle manufacturer. The watershield is configured to provide both hydrophobicity and acoustical absorption of airborne noise in an automotive vehicular door application. Thus the watershield as set forth in the claims is an integrated device that operates to redirect water introduced into the inner cavity of the door while also functioning to reduce noise that enters the vehicle. During vehicle operations, water can be introduced into the inner cavity of the vehicle door from a variety of sources. Rain and standing water contact the window and is conveyed downward. When a vehicle is conveyed through a car wash, significant quantities of water contact the door and door window and are conveyed downward. While a portion of the water may be directed down the exterior wall portion of the door, an additional portion of the water is conveyed through the interior cavity of the vehicle door and exits the door through suitable apertures located in the lower portion of the door structure. It is necessary that the water conveyed through the interior cavity of the door be directed away from the interior in an efficient and effective manner.

The environmental and performance challenges connected with automotive vehicle doors are numerous and varied and not limited to the issues presented by water exposure. In addition to matters of vehicle performance, occupant safety and the like, an automotive vehicle door typically houses mechanical equipment such as locks, window mechanisms and the like. The automotive vehicle door can also house equipment, including but not limited to, radio speakers and the like. The automotive vehicle door typically needs to be configured to provide an essentially water-free interior environment in the passenger vehicle. This is typically accomplished by redirecting water that gets into the vehicle door body away from any interiorly directed apertures to suitable water egress

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 7 of 14

apertures. Thus at least a portion of the interior chamber is a "wet" environment where exposure to significant amounts of water is anticipated and expected.

Noise reduction in the passenger compartment of a vehicle is a major concern. One source of noise that can potentially be reduced is external noise transmitted through the door panel itself. Various concepts for noise reduction, particularly transmitted noise reduction, have been proposed. However the effectiveness of such prior proposals has had limitations. Heretofore, it has been difficult to develop a sound reduction device that can function in the "wet" environment of the internal door cavity. While the internal door cavity may not be continuously wet, at least a portion of the internal cavity potentially is exposed to significant amounts of water as during torrential downpours, exposure to automatic car wash systems and the like. Exposure to water can compromise the function and effectiveness of many types of sound reduction devices and materials. The invention as set forth in the present claims seeks to address and alleviate one or more of these issues.

It is submitted that the invention as set forth in the present claims is directed to configuration and device that can function as a noise reduction device in a "wet" environment. Heretofore there existed devices that could function to divert or direct water and devices that could reduce or eliminate sound penetration. The present invention is directed to a device that can address both functions.

Initially, claims 20 and 21 currently stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Claim 20 depends from claim 14, which is written in closed language. The Examiner points out that claim 20 as written adds another material to claim 14, making claim 20 indefinite. Claim 20 has been amended to refer to a specific element of claim 14 for antecedent basis to overcome the indefinite rejection. Claim 21 depends from claim 20 to include all of the limitations therein. It is respectfully submitted that claims 20 and 21 are currently in allowable form.

Claim 13 currently stands rejected under 35 U.S.C. § 102(b) as being anticipated by the Doerfling reference. Claim 13 specifies that the water shield consists of means for forming a first layer of hydrophobic air restrictive but breathable *face* scrim and means for forming a second layer of an open cell polymeric foam as well as means for joining the first layer to the second layer. Claim 13 has been amended to clarify that *face* scrim means that the scrim is joined to the surface of the second layer. This amendment is supported in the claims by its own term, as well as in Fig. 3. It is respectfully submitted that the Doerfling reference fails to teach or suggest a water shield consisting of these three elements. In contrast, the Doerfling reference is composed of a substrate, a

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 8 of 14

foam laminate, and a lattice scrim located between the substrate and the exposed surface of the foam layer. (See Doerfling, abstract).

The Doerfling reference is directed to a method of producing foam laminates including foam-backed carpet laminates for use as *interior* paneling in an automobile. (See Doerfling, column 1, lines 7-10). The Doerfling reference fails to teach or suggest use of a hydrophobic, breathable face scrim. It is submitted that the scrim set forth in Applicant's claim 13 is a face scrim, meaning that the scrim is the exposed face of the laminate. This is supported by the use of the term "face scrim," as well as Figures 1 and 3 of the present invention. The Doerfling reference fails to teach a face scrim joined to the surface of a second layer. The Doerfling reference teaches a scrim that floats within the foam layer, located between the substrate and the exposed skin of the foam. (See Doerfling, column 2, lines 47-50, column 5, lines 52-55, and claim 9). This contradicts the face scrim required by the Applicant's claim.

It is submitted that the hydrophobicity of the scrim as set forth in claim 13 contributes to the utility of the configuration in applications such as automotive doors where exposure to water is probable. The disclosure in Doerfling, being directed to a carpet foam laminate for use in the interior of a vehicle, with a scrim floating within the foam layer, fails to teach or suggest a scrim with water shield capacity or capability. Indeed, use of a carpet material such as that disclosed in Doerfling could provide a water absorptive medium rather than the water shield of the invention as set forth in claim 13.

Further, it is submitted that the Doerfling reference fails to teach or suggest an airflow restrictive, but breathable face scrim. The Doerfling reference, directed as it is to a carpet laminate, fails to teach or appreciate a breathable face scrim. Doerfling discloses a scrim in which the substrate is heated through the scrim. The foam layer is then sprayed through the scrim, causing the scrim to float in the foam layer. (See Doerfling, column 2, lines 44-50). The scrim is used as reinforcement of the foam layer to prevent tearing during trimming. (Doerfling, column 2, lines 40-44 and claim 13). The floating scrim in Doerfling fails to teach or suggest a breathable face scrim, and actually teaches away from the breathability.

Claim 13 of the present invention discloses means for joining the face scrim and the foam layer. Doerfling particularly points out that its method eliminates the necessity means for joining the face scrim and the foam layer, in Doerfling, an adhesive bond between the foam and substrate. (See Doerfling, column 1, lines 35-38).

The Doerfling reference also lacks any teaching or suggestion the face scrim and the foam layer being configured so as to be positioned in the interior cavity of a vehicle door body in the

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 9 of 14

manner outlined in claim 13. Without being bound to any theory, it is believed that the acoustic performance of the present invention as defined in claim 13 is achieved by the use of a first layer of a hydrophobic, air restrictive but breathable face scrim that is configured to be oriented in the direction of an outer panel of the vehicle door and a second layer of an open-cell polymeric foam oriented in the direction of an inwardly facing member of the door panel. It is theorized that the juxtaposition of the hydrophobic breathable scrim with the open-cell polymeric foam facilitates the absorption of sound energy in various forms such as heat energy, particularly in a "wet" environment. Without being bound to any particular theory, it is believed that that sound wave energy enters the structure through the first layer, the hydrophobic breathable face, where sound is directed and dispersed into the second absorbent layer. Sound absorption can include the conversion of sound energy into heat that can be radiated from the absorptive body. It is believed that the hydrophobic breathable face disrupts at least a portion of the sound wave flow; redirecting it to into the open-cell foam layer in a disrupted manner to more efficiently absorb sound energy. The Doerfling reference lacks any teaching or suggestion of the configuration of the two elements.

Further, it is submitted that the acoustic performance of the scrim as set forth in claim 13 contributes to the utility of the configuration in applications such as in vehicle door panels. Without being bound to any theory, it is believed that the apertured scrim joined to the surface of the foam layer provides tuning of the sound wave frequencies to maximize the efficiency of the foam layer in achieving sound absorption. It is submitted that the acoustical performance of the scrim would be significantly less if the scrim was "floated" in the foam layer, as required by the Doerfling reference. (See Doerfling, column 2, lines 45-50). The watershield as set forth in claim 13 specifies that the device consists of means forming the first hydrophobic, air restrictive breathable scrim and means for a second layer of an open-cell polymeric foam joined by for joining the first layer to the surface of the second layer. It is submitted that this precludes the floated construction set forth in Doerfling.

It is also submitted that the Doerfling reference lacks any teaching or suggestion of means for attaching the watershield to an inner surface of the inwardly facing door member. Support for this amendment is found in the specification at paragraph 24 and in Figure 3.

In short, the Doerfling reference fails to teach, suggest, or appreciate a laminate constructed of a face scrim, adhesive layer, and foam layer useful for both stopping water infiltration and attenuating or minimizing sound in the same device, space, and location. Thus, it is submitted that the Applicants' invention as set forth in claim 13 is not taught, anticipated, or rendered obvious

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 10 of 14

by the Doerfling reference. Applicant respectfully requests that the Examiner withdraw the rejection of this claim.

Claims 14, 15, 17, 19, and 23 currently stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tilton et al. in view of Thompson. The Examiner contends that the Tilton reference discloses a liner used to insulate a vehicle door comprising a lofty pad of fibrous material. The material can comprise synthetic fibers including polyester, polyethylene, polypropylene, natural fibers and any mixtures thereof. The liner in Tilton comprises a facing material that includes a scrim. The scrim can comprise glass or polyester fibers. The Examiner contends that glass fibers are hydrophobic, and further, that Tilton discloses the claimed invention except that the scrim is non-woven. The Thompson reference is cited as disclosing an acoustical insulating web and a method for attenuating sound waves comprising a laminate of a non-woven insulation web comprising thermoplastic fibers and a scrim layer. The Examiner indicates that it would have been obvious to one having ordinary skill in the art to have made the scrim of Tilton be a spunbond non-woven scrim, as disclosed by Thompson.

Claim 14 of the present invention is directed to a vehicle door watershield consisting of a laminate. The laminate consists of a first layer of hydrophobic scrim oriented toward the outer panel of the door and exposed to the air space in the door. The laminate further consists of a second layer of a lofted non-woven fiber pad or foam oriented toward the inwardly facing side of the door. Claim 14 has been amended to clarify that the first layer is joined to the surface of the second layer and that the first layer is exposed to air. This is supported in the drawings at Figs. 1 and 3 and in the specification at paragraph 34.

The Tilton reference discloses a liner/insulator and fails to teach a laminate or a scrim at all. The Tilton reference particularly teaches away from the use of a laminate construct by specifically stating that the pad discussed in Tilton is a *non-laminate*. (See Tilton, paragraph 35). Furthermore, the Tilton reference employs the term "skin" rather than "scrim." It is respectfully submitted that the term "skin," as used in Tilton, and "scrim," as used in the present invention, are not equivalent. In the above-identified application, the scrim is a separate layer in the laminate that provides its own level of air permeability and sound absorption. The scrim layer and the second layer may be coordinated to provide the desired acoustics. (See paragraph 15 and Figure 3). The Tilton reference discloses a pad with a skin formed from a single, unitary sheet of fibrous starting material. (See Tilton, paragraph 35). Thus, the skin in Tilton is not a separate layer, or scrim, but is rather an integral part of the pad formed by heat-searing a surface of the pad. (See Tilton, paragraph 45).

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 11 of 14

Further, the skin disclosed in Tilton is not breathable as is defined in the above-identified application. Tilton stresses that the heat-seared skin closes the pores of the material making it impervious. (See Tilton, paragraph 36). This teaches away from a breathable scrim. Because Tilton does not teach a laminate or a scrim, it is respectfully submitted that it would not be obvious to one skilled in the art to incorporate the non-woven scrim of Thompson. To do so would contravene the teaching of the use of a non-laminate.

It is also submitted that because the Tilton reference lacks any teaching of breathability as set forth in the Applicant's invention as set forth in claim 14, the structure disclosed in Tilton cannot function to transfer and disrupt sound in the manner outlined previously in conjunction with claim 13. Thus the reference fails to teach or suggest a construction that can function in a wet environment to convey sound through the scrim in a disrupted manner for absorption in the second layer.

The Thompson reference is cited for the teaching that scrim can be constructed as a non-woven. As can be seen from the preceding discussion, the Tilton reference teaches that a heat seared skin is necessary to provide a suitable water shield. The Thompson reference is directed to acoustical insulation materials in which the hydrophobicity is due to the presence of a *film or foil* layer (see Thompson, col.7, lines 14- 29). The reference lacks any teaching or suggestion of a hydrophobic scrim. Thus, it is submitted that the Applicants' invention as set forth in claim 14 is not taught, anticipated, or rendered obvious by the Tilton reference in view of Thompson.

Claims 15, 17, and 19 currently stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Tilton et al. in view of Thompson. Claims 15, 17, and 19 depend from independent claim 14 to contain all of the limitations found therein. By this dependency, it is submitted that the Applicants' invention is not taught, anticipated, or rendered obvious by the Tilton reference in view of the Thompson reference for the reasons discussed previously in support of claim 14.

Claim 18 currently stands rejected under 35 U.S.C. § 103(a) as being rendered obvious by the Tilton reference in view of the Thompson reference. The Examiner contends that, while neither Tilton nor Thompson discloses the claimed air permeability, it is reasonable to presume that air permeability is a property inherent to both the Tilton and the Thompson inventions. The Tilton reference has been discussed above in conjunction with claim 14. The Thompson reference is directed to a foil or generally planar thermoplastic film 14 adapted to act as a water barrier or shield or deflector to which the acoustical insulation web of Thompson is attached. It is respectfully submitted that the use of the film 14 negates air permeability. Tilton discloses a skin

Application Serial No. 10/738,930
Date October 5, 2006
Reply to Office Action dated June 2, 2006

Page 12 of 14

that is not breathable. Tilton particularly points out that the skin formed by heat searing closes the pores of the material making it impervious. Thus the Tilton reference contravenes any teaching of air permeability. (See Tilton, paragraph 36). Thus, it is submitted that the Applicants' invention as set forth in claim 18 is not taught, anticipated, or rendered obvious by the Tilton and Thompson references.

Furthermore, claim 18 depends from claim 14 to contain the limitations found therein. By this dependency, it is submitted that the Applicant's invention as set forth in claim 18 is not taught, anticipated or rendered obvious by the cited references for the reasons discussed previously in conjunction with claim 14.

Claim 16 currently stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tilton in view of Thompson and further in view of Klaff. The Examiner contends that it would have been obvious to use the perforated film of Klaff as the scrim in Tilton; however, Applicant submits that Tilton specifically decries the use of an additional layer. Tilton discloses a pad with a skin formed from a single, unitary sheet of fibrous starting material. (See Tilton, paragraph 35). Thus, the skin in Tilton is not a separate layer, or scrim, but is rather an integral part of the pad formed by heat-searing a surface of the pad. (See Tilton, paragraph 45). Claim 16 depends from claim 14 to contain all of the limitations found therein. By this dependency, it is submitted that the Applicants' invention as set forth in claim 16 is not taught, anticipated, or rendered obvious by the cited references for the reasons discussed previously in support of claim 14. It should also be noted that the Klaff reference teaches the use of a non-woven batt of chemical resistant fibers to provide water resistance. A scrim is added to provide strength to the batt rather than for the purpose increasing resistance to water or chemicals as noted by the Examiner.

Claim 22 currently stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tilton in view of Thompson and further in view of Potts. The Examiner indicates that the Potts reference discloses a non-woven laminiferous structure comprising two adjacent non-woven layers and a scrim layer interposed between. The laminate can comprise an SMS structure. The Examiner concludes that it would have been obvious to employ Potts as the scrim in the Tilton and Thompson reference. The Examiner has cited the Potts reference at column 16, lines 32-36, which specifies a tri-laminate composed of a polypropylene spun-bonded web, a polypropylene melt-blown web containing an additive that renders the fibers hydrophillic (i.e. water wettable), and a polypropylene spun-bonded web. It is submitted that this is in direct contravention to the present invention, which specifies that the first layer is hydrophobic. Further, the Tilton reference teaches away from a scrim or any other layer. Claim 22 depends directly from claim 14 to contain all of the limitations found

Application Serial No. 10/738,930

Page 13 of 14

Date October 5, 2006

Reply to Office Action dated June 2, 2006

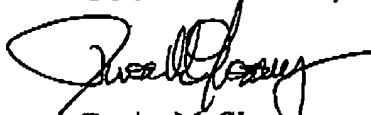
therein. By this dependency, it is submitted that the Applicants' invention as set forth in claim 22 is not taught, anticipated, or rendered obvious by the cited references.

Claim 23 currently stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Tilton et al. in view of Thompson. Claim 23 as amended discloses a vehicle door assembly comprising an outward panel, and inward panel, and a door watershield composed of a non-woven breathable, hydrophobic scrim and a lofted fiber pad. Breathability is supported numerous placed in the specification, including paragraphs 29-32. The Thompson reference is directed to a foil or generally planar thermoplastic film 14 adapted to act as a water barrier or shield or deflector to which the acoustical insulation web of Thompson is attached. It is respectfully submitted that the use of the film 14 negates breathability. Tilton discloses a non-laminate, teaching away from a second layer. Thus, it is submitted that the Applicants' invention as set forth in claim 23 is not taught, anticipated, or rendered obvious by the Tilton reference in view of Thompson.

In summary, claims 13, 14, 20 and 23 has been amended by this action. Arguments have been presented as to why the Applicants' invention as set forth in claims 13-23 are not taught, anticipated, or rendered obvious by the cited references. In view of this, it is submitted that the Applicants' invention as set forth in these claims is suitable for allowance. A Notice of Allowance is, therefore, respectfully requested.

Respectfully submitted,

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